

REMARKS

Claims 1 - 20 are pending in the present application. By this Amendment, claim 3 has been canceled and claims 1, 2 and 15 have been amended. No new matter has been added. It is respectfully submitted that this Amendment is fully responsive to the Office Action dated February 26, 2004.

Claim Objection:

Claim 1 stands objected to in item 1 of the Action due to a minor informality. However, claim 1 has been amended to correct such informality. Accordingly, withdrawal of this claim objection is respectfully solicited.

As to the Merits

As to the merits of this case, the Examiner sets forth the following rejections:

- 1) claims 1 - 6, 8 - 9, 13 and 14 are rejected under 35 USC §102(e) as being anticipated by Yamauchi et al. (U.S. Patent No. 6,503,778);
- 2) claim 10 is rejected under 35 USC §103(a) as being unpatentable over Yamauchi et al.;
- 3) claim 7 is rejected under 35 USC §103(a) as being unpatentable over Yamauchi et al. in view of Kabumoto et al. (U.S. Patent No. 5,883,428); and
- 4) claims 11 and 12 are rejected under 35 USC §103(a) as being unpatentable over Yamauchi et al. in view of Cuchiario et al. (U.S. Patent No. 5,888,585).

Each of these rejections is respectfully traversed.

Claim 1, as amended, now calls for *a wiring layer formed on or above said support substrate, leading some of said through holes filled with conductor upwards via said capacitor, having branches, and having wires of a second uniform pitch narrower than said first uniform pitch, and plural semiconductor elements disposed on or above said wiring layer, having terminals in conformity with the second uniform pitch, and connected with said wiring layer via said terminals.*

For example, as shown in Figures 1J-1T of the present application, a semiconductor apparatus, comprising: a support substrate S having through holes 14 filled with conductor 18 in conformity with a first uniform pitch 18, a capacitor 20, 21, 22 formed on or above said support substrate S, a wiring layer 26 formed on or above said support S, leading some of said through holes 14 filled with conductor 18 upwards via said capacitor 20, 21, 22, having branches, and having wires 25 of a second uniform pitch 29 narrower than said first uniform pitch 18, and plural semiconductor elements ICI, IC2 disposed on or above said wiring layer 26, having terminals in conformity with the second uniform pitch 29, and connected with said wiring layer 26 via said terminals.

That is, this invention may be featured by that the through holes formed in the support substrate have a first uniform pitch, that the wiring layer formed on or above the support substrate via the capacitor, has branches, and has wires of the second uniform pitch narrower than the first uniform pitch. By such arrangement, the semiconductor apparatus can have a decoupling capacitor of sufficiently large capacitance, and can effectively connect

semiconductor elements of narrow terminal pitch (second uniform pitch) with circuit board of wide wiring pitch (first uniform pitch).

Yamauchi discloses thin film device in which separately formed device layers each having passive or active elements are connected through conductive members such as solder bumps, to increase the freedom of manufacturing process and to improve the through-put of manufacture. Yamauchi does not aim to connect semiconductor elements of narrow terminal pitch with a circuit board of wide wiring pitch. Yamauchi does not disclose the claimed constitutional elements. For example, the support substrate (17, 36 in Fig. 9A) of Yamauchi simply reinforces the strength of the device layers (20, 40 in Fig 9A), and does not have any through holes (of uniform pitch) for connecting with a circuit board. The device layers provided on the support substrate does not have “a wiring layer ... leading some of said through holes ... via said capacitor, having branches, and having wires of a second uniform pitch narrower than said first uniform pitch”. The significant effect that semiconductor elements having terminals of narrow second uniform pitch can be connected through a decoupling capacitor of a sufficiently large capacitance to a circuit board having wires of a wide first uniform pitch, cannot be provide by Yamauchi.

In view of the aforementioned amendments and accompanying remarks, Applicants submit that that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

Response under 37 C.F.R. §1.111

Attorney Docket No.: 020214

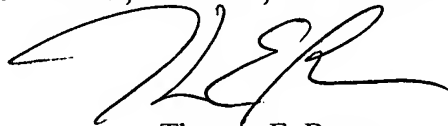
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If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP

A handwritten signature in black ink, appearing to read 'TEB', is written over the printed name of Thomas E. Brown.

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